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ABSTRACT

It is suggested that the static model of language which is prerequisite for contrastive analysis is inadequate in pinpointing potential difficulties in second language learning. The student learning graphemic-phonetic correspondences encounters two types of difficulties not exposed by contrastive analysis: dialectal difficulties and reading difficulties resulting from the particular strategy used by the student in learning to read his own language. Data are presented showing how certain dialect traits of Black English influence the learning of the relationship between standard German pronunciation and its written representation. Students taking part in this test were all in their first year of German study at Norfolk State College (NSC), Old Dominion University (ODU) or the University of Massachusetts (UMA). Their scores on reading/speaking task (performance) and on a hearing/writing task (perception) are the basic data of this study. Students of NSC consistently had the highest error quotients, and students at UMA consistently had the lowest. It is concluded that dialectal influence is a factor that must seriously be considered in teaching foreign languages; the dialect speaker has an additional difficulty that speakers of standard English do not experience. The number of factors causing difficulties in learning graphemic-phonetic correspondences in a foreign language can be complex, based as they are upon native-language dialect differences, reading strategies, and perhaps other variables. Therefore it is highly unlikely that contrastive analysis of the two standard languages can do more than approximate learning difficulties. An iconographic reading test devised during the study and tables showing error patterns on the tests are appended. (Author/CFM)

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The Influence of Dialect and Reading on Second-Language Learning *

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The teaching of graphemic-phonetic correspondences in a foreign language has traditionally depended on contrastive analyses of the two standard languages in question to pinpoint potential learning difficulties (Koekkoek 1954, Moulton 1962a, 1962b). Increased linguistic interest in the variability of language including social and regional dialects would suggest, however, that the static model of language which is prerequisite for contrastive analysis is inadequate (Labov 1972, Bailey 1973, Bailey and Shuy 1973), and that the factors which give rise to learning difficulties are more complex than contrastive analysis would suggest. The student learning graphemic-phonetic correspondences encounters two types of difficulties which are not exposed by contrastive analysis: dialectal difficulties, due to the fact that dialects, especially socially stigmatized ones, tend to be blended in differing proportions with the standard version of the learner's language; and reading difficulties resulting from the particular reading strategy used by the student in learning to read his own language.

This paper is an expansion of earlier work at a predominantly Black college in the urban South, where we tested the effect of

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dialect traits upon the production and perception of standard German words (Grosse and Hameyer 1976). The tests developed there were also administered to students at a predominantly White college in the same urban milieu, and to students at a north-eastern university as a control. In examining our results we were forced to conclude that the role of reading in the learning of graphemic-phonetic correspondences is as important as the role of dialect.[1]

Dialect Influence

Aside from the fact that contrastive analysis depends on a static view of language, it is also true that there are relatively few studies presenting data to corroborate the predictions made on the basis of contrast. In this paper we present data showing how certain dialect traits generally associated with "Non-standard Negro English", "Black English", or "Black English Vernacular" influence the learning of the relationship between standard German pronunciation and its written representation. Students taking part in the test,[2] although not constituting a statistically representative sample, were all in their first year of German study at Norfolk State College (NSC), Old Dominion University (ODU) and the University of Massachusetts (UMA). Their scores on a reading/speaking task (performance) and on

[1] For the influence of dialect on foreign language learning, c.f. Ginesy and Hirst 1972 and James 1974.

[2] We would like to thank the faculty and especially the students at all three institutions for their cooperation without which this study would not have been possible.

a hearing/writing task (perception) are the basic data of this study. [3]

Forty-five mono- bi- and tri-syllabic German word pairs (designated "G" words) were assembled. They differed only with respect to:

1. Medial vowel identity [4]
2. Medial consonant identity
3. Presence of medial consonants in clusters

Another forty-five German word pairs (designated "D" words) were assembled differing only with respect to the following dialect trait:

1. Deletion of post-vocalic [r] and [l] (as in "laud" for "lord"),
2. Merging of pre-nasal [ɪ] and [ɛ] (as in "pin" for "pen"),
3. Monophthongization of [aj] and [aw] (as in "hah" for "high"),
4. Merging of [ij] and [ej] (as in "beer" for "bear"),
5. Deletion of final [d] and [t] in clusters (as in "talk" for "talked").

The two groups of word pairs are shown in Tables 1 and 4 respectively.

All words were then randomized to produce a printed list which students were asked to read into a tape recorder. Their responses were phonetically transcribed and graded for proper pronunciation. Only the segment by which a word pair differed

[3] Since the student groups from three different institutions had different instructors, strictly speaking the quality of instruction was an uncontrolled variable, but, we believe of not very large consequence.

[4] All the vowel phonemes of standard German except [y , Y , œ, and ɔj] were represented in the word pairs.

was graded. [5] The same list of randomized words was then recorded in standard German pronunciation, and students were asked to write them down in German, and their responses were likewise graded. The ratio of incorrect responses to the total number of possible responses, henceforth called "error quotients" (EQs) were then calculated for the various groups of students, word lists, and word types. A detailed exposition of the resulting data and an explanation of the calculations leading to Table 7 are presented in Tables 1 - 6.

In considering the results summarized in Table 7, one might conclude that the dialect traits have influenced the production and perception of all student groups, since the error quotients of all student groups for the "D" words are consistently larger than for the "G" words. This would be incorrect, however, because the difference between the "G" EQs and the "D" EQs for the UMA group is not statistically significant.[6] Moreover, the difference between the "G" EQs for the ODU and UMA groups is not statistically significant, whereas the "D" EQs are. This

[5] What constitutes "proper pronunciation" was limited by a number of heuristic constraints such as the following:
- -omissions were graded as incorrect.
- -partial consonant sequences were graded as incorrect.
- -metathesized forms were accepted (c.f. Bond 1972, Menyuk 1972).
- -homorganic consonants were accepted.
- -phonetic details such as diphthongal pronunciation were ignored.
- -typical American mis-spellings were accepted.

In general, the guiding principle was whether a native German would perceive the sound correctly.

[6] All further reference to significance is based on Yates' modification of the ψ^2 test (c.f. Langley 1971).

would indicate that on the "G" list ODU students perform about like the UMA students, while the NSC students do not; a fact to which we will return later. But on the "D" list the ODU students are influenced by the dialect traits, but not to the extent as are the NSC students; another fact to which we will have to return.

Table 7 also breaks down the items of the "G" and "D" lists into vowel items and consonantal items, and it can easily be seen that of the two, all student groups had consistently more difficulty with vowel items in both perception and production, and for both normal German words and for words where one would expect dialect influence. This is not particularly surprising since the German graphemic-phonetic correspondences differ most from those of English in the area of vowel quality. It is interesting to note, however, that when written and spoken EQ's are averaged, as may be done since the number of items was identical, the ODU students generally take an intermediate position between UMA and NSC results. It is therefore probable that the same factors as are influencing the NSC students also affect the ODU students, only to a lesser degree. This same conclusion can also be reached by a consideration of the bar graph of Figure 1.It shows the relative influence of the dialect traits upon the perception and production of German sounds. It can be seen that the EQ's are highest for the German [o:/u:] distinction for all groups of students, but that the greatest dialect influence, as measured by contrast to the control group, comes

from the consonantal items and the [ɪn/ɛn] distinction, and in each instance the NSC students are more influenced than are the ODU students.

Contrastive analysis would not have predicted this difference in degree of dialect influence, either a priori or a posteriori. The causes for the difference should probably be sought in the attitude (c.f. Lambert 1972) of the respective speech communities toward dialect and standardization. The predominantly White, middle class students are probably more receptive to standardization, and therefore are less influenced by dialect in their German than are NSC students. Whatever the causes for dialect influence, it is a factor that must seriously be considered in the teaching of foreign languages because the dialect speaker has an additional difficulty above and beyond what speakers of standard English experience in acquiring an acceptable pronunciation of a foreign language. It might be useful to develop guides for teachers in various regional and social milieus where dialects are spoken, and where the teacher has perhaps only minimal training in dialectology. This might be more helpful than the usual textbook practice of using standard "General American", insofar as that exists, as a point of reference for the pronunciation of the foreign sounds.

Reading Strategies

In addition to the possibility of attitudinal differences to dialect, we feel that certain other considerations suggest that another factor may be operating in producing the results reported above.

A positive correlation was found between the performance of individual NSC students on the test reported above and on a standardized reading test, the Iowa Silent Reading Test, which is given to all incoming students at Norfolk State College. This and the observation that many students seemed to have difficulty deciphering what seemed to be perfectly obvious sequences of German letters, led us to the hypothesis that reading difficulties may also be influencing the learning of graphemic-phonetic correspondences in German.

Until several years ago, as is well known, many schools in this country had adopted a reading pedagogy based upon the findings of reading specialists, that adults read not by decoding the printed word, but rather by recognizing whole words. To what extent this same strategy is used by children learning to read is still a matter of some dispute (c.f. Smith 1971), but nevertheless a whole generation grew to adulthood not knowing how to pronounce words they had not seen before.

A test was devised to determine whether iconographic word recognition by NSC students might account in part for the performance differences between NSC and ODU students. First-year German students at these two institutions, albeit different ones from the original groups, were asked to copy a number of English, French and German sentences onto the other side of a sheet. The sentences were minimally meaningful, and used words deliberately chosen for their visual resemblances. The students were deliberately rushed, but there was no other control over the time element. The list of sentences as well as the "look-

alike" words with which they were laced are presented in Table 8 . It can be seen from Table 9 , showing the EQs for the "look-alike" words as well as for all other errors committed, that the NSC students made significantly more test word errors than did the ODU students, whereas the number of errors for other words was about the same for ODU and NSC student groups. This result is consistent with the iconographic reading hypothethis, but does not immediately explain why NSC students should be reading iconographically and ODU students not. To understand this we need to consider some socio-historical information.

NSC students participating in the study ranged in age from 18 to 35, and therefore began their schooling either in a totally segregated school system or, immediately after the the enforcement of integration, in a system where the process of integration was slow, disruptive, and chaotic. Schools were closed for a while in Virginia, while middle-class students went to private schools. Students, especially in the critical lower grades, inevitably experienced difficulties in learning basic skills. Although remedial reading clinics were established in the late 1950s, these continued to be segregated as late as 1965 and attendence was limited. Many Black students continued to experience language difficulties, and in fact nine of the thirteen students participating in this study for whom data was available, read below grade level upon entering Norfolk State College. Scores on the Iowa Silent Reading Test ranged

from fifth through thirteenth grade levels. Instructors from the remedial reading clinics suggest that many students experiencing reading difficulties had not been adequately schooled in "phonics", and surmise that the amount of "phonics" taught in the classroom varied greatly, since not all teachers had received the requisite training. Correlations have also been found between reading ability and sociological factors such as participation in the "street culture" (c.f. Labov 1972).These factors are invariably found more frequently in the lower socio-economic levels from which 60% of all NSC student come, and it is to be expected that they will have more reading difficulties than the predominantly middle-class students at ODU. At this stage our explanation for the results of our study are fairly far removed from linguistics, and begin to extend beyond our areas of competence.

However, the essential point and our major conclusion is that the number of factors which give rise to difficulties in learning graphemic-phonetic correspondences in a foreign language can be rather complex, based as they are upon dialect differences in the native language, reading strategies, and perhaps other variables, such that it is highly unlikely that contrastive analysis of the two standard languages will be anything more than a crude approximation of the potential learning difficulties.

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Table 1

Number of errors committed in PERCEPTION and *PRODUCTION* ** of "G" word pairs : NSC group

Medial Vowel Identity		Medial Consonant Identity		Presence of Medial Consonants in Clusters	
schon	schön	nebst	nächst	Haft	hat
4 *6*	6 *8*	7 *7*	6 *9*	6 *2*	2 *0*
doch	Dach	Haft	Halt	Schmerz	Scherz
4 *3*	8 *4*	6 *3*	3 *6*	2 *3*	2 *7*
nicht	Nacht	Schrift	Stift	Glut	gut
0 *2*	1 *0*	11 *5*	3 *5*	1 *0*	0 *0*
wann	wenn	Luft	Lust	ratsch	rasch
4 *1*	5 *7*	3 *4*	2 *2*	6 *9*	4 *4*
Lust	List	Nacht	nackt	stramm	stamm
13 *2*	5 *2*	0 *10*	16 *8*	1 *2*	2 *3*
25 *20*	25 *21*	27 *29*	30 *30*	16 *16*	10 *14*
50 *41*		57 *59*		26 *30*	
sprechen	sprachen	schlagen	schlafen	treuer	teuer
4 *3*	1 *4*	1 *3*	1 *0*	4 *3*	2 *6*
lieben	leben	gehen	geben	kaufen	kauen
3 *1*	6 *6*	3 *0*	0 *0*	1 *1*	2 *3*
Mitte	Miete	Magen	malen	schliessen	schiessen
3 *1*	7 *4*	0 *4*	1 *5*	3 *2*	2 *5*
Wesen	Wiesen	lochen	locken	manchen	machen
5 *13*	11 *3*	11 *10*	9 *3*	3 *3*	1 *7*
lochen	lachen	tragen	traben	Ratte	Ratze
5 *6*	8 *2*	1 *0*	1 *1*	8 *1*	12 *1*
20 *24*	33 *19*	16 *17*	12 *7*	19 *10*	19 *22*
53 *43*		28 *24*		38 *32*	
begannen	begonnen	ernennen	erkennen	gelitten	gelitten*
4 *3*	1 *1*	6 *0*	0 *0*	4 *1*	*1*
erbleichen	erblichen	einkaufen	einlaufen	gekrochen	gerochen
3 *10*	8 *7*	0 *0*	0 *0*	11 *3*	0 *2*
gelingen	gelangen	verlogen	verzogen	verbraten	verraten
11 *4*	3 *1*	0 *0*	1 *3*	1 *1*	0 *0*
verschwinden	verschwanden	Verlobung	Verlosung	geflochten	gefochten
12 *3*	3 *1*	2 *2*	5 *12*	2 *4*	4 *1*
erschiessen	erschossen	Folterung	Folgerung	vertragen	vertagen*
6 *3*	9 *6*	10 *7*	8 *7*	0 *1*	1
36 *23*	24 *16*	18 *9*	14 *22*	14 *10*	10 *5*
60 *39*		32 *31*		24 *15*	
Column Total		Column Total		Column Total	
163 *123*		117 *114*		88 *77*	

List Total 368 *314*

**Production data in *italic* type throughout.

*Due to an oversight these words show no contrast. The calculations compensate for this.

Table 2

Number of errors committed in PERCEPTION and *PRODUCTION* ** of "G" word pairs : ODU group

Medial Vowel Identity		Medial Consonant Identity		Presence of Medial Consonants in Clusters	
schon	schön	nebst	nächst	Haft	hat
1 4	2 1	0 3	4 4	2 1	2 0
doch	Dach	Haft	Halt	Schmerz	Scherz
0 1	5 3	1 0	0 0	8 1	0 2
nicht	Nacht	Schrift	Stift	Glut	gut
0 3	0 0	2 0	1 1	2 1	0 0
wann	wenn	Luft	Lust	ratsch	rasch
1 0	1 2	0 0	0 0	6 3	1 1
Lust	List	Nacht	nackt	stramm	stamm
1 3	0 4	1 5	12 4	0 0	0 0
3 11	8 10	4 8	17 9	18 6	3
11 21		21 17		21 9	
sprechen	sprachen	schlagen	schlafen	treuer	teuer
0 0	0 1	0 1	1 1	2 2	1 0
lieben	leben	gehen	geben	kaufen	kauen
0 3	0 1	0 0	1 0	0 0	1 1
Mitte	Miete	Magen	malen	schliessen	schiessen
1 2	4 3	2 0	0 0	1 0	0 2
Wesen	Wiesen	lochen	locken	manchen	machen
3 2	0 1	1 4	12 5	1 0	0 2
lochen	lachen	tragen	traben	Ratte	Ratze
6 0	1 0	0 0	0 0	0 1	3 3
10 7	5 6	3 5	14 6	4 3	5 8
15 13		17 11		9 11	
begannen	begonnen	ernennen	erkennen	gelitten	gelitten*
4 0	5 3	2 0	1 0		0 0 0 0
erbleichen	erblichen	einkaufen	einlaufen	gekrochen	gerochen
1 1	3 4	0 0	0 1	9 2	1 0
gelingen	gelangen	verlogen	verzogen	verbraten	verraten
2 0	2 0	0 0	1 3	0 0	0 0
verschwinden	verschwanden	Verlobung	Verlosung	geflochten	gefochten
4 0	1 0	1 1	2 0	2 1	1 0
erschiessen	erschossen	Folterung	Folgerung	vertragen	vertagen*
6 1	5 2	3 2	1 3	1 0 0	1
17 2	16 9	6 3	5 7	12 3	3 0
33 11		11 10		15 3	
Column Total		Column Total		Column Total	
59 45		49 38		45 3	

List Total 153 106

**Production data in *italic* type throughout.

*Due to an oversight these words show no contrast. The calculations compensate for this.

Table 3

Number of errors committed in PERCEPTION and *PRODUCTION* ** of "G" word pairs : UMA group

Medial Vowel Identity		Medial Consonant Identity		Presence of Medial Consonants in Clusters	
schon	schön	nebst	nächst	Haft	hat
0 2	0 1	0 0	3 0	0 0	0 0
doch	Dach	Haft	Halt	Schmerz	Scherz
0 2	1 0	1 0	0 0	0 0	0 0
nicht	Nacht	Schrift	Stift	Glut	gut
0 0	0 0	0 0	0 0	0 1	0 0
wann	wenn	Luft	Lust	ratsch	rasch
0 1	0 0	0 0	0 0	3 3	0 0
Lust	List	Nacht	nackt	stramm	stamm
5 1	1 0	0 2	6 1	0 1	0 0
5 6	2 1	1 2	9 1	3 5	0 0
7 7		10 3		3 5	
sprechen	sprachen	schlagen	schlafen	treuer	teuer
0 0	0 2	0 0	0 0	1 1	0 0
lieben	leben	gehen	geben	kaufen	kauen
1 1	1 1	0 0	0 0	0 0	1 0
Mitte	Miete	Magen	malen	schliessen	schiessen
0 0	1 1	0 0	1 1	0 0	0 1
Wesen	Wiesen	lochen	locken	manchen	machen
2 4	3 1	5 2	3 0	1 3	1 2
lochen	lachen	tragen	traben	Ratte	Ratze
1 2	0 0	1 0	0 0	2 0	2 0
4 7	5 5	6 2	4 1	4 3	4 3
9 13		10 3		8 6	
begannen	begonnen	ernennen	erkennen	gelitten	gelitten*
2 0	1 1	0 0	0 0		0 1 0 0
erbleichen	erblichen	einkaufen	einlaufen	gekrochen	gerochen
0 1	2 2	0 0	0 0	1 0	2 0
gelingen	gelangen	verlogen	verzogen	verbraten	verraten
2 0	3 1	0 0	0 1	0 1	0 0
verschwinden	verschwanden	Verlobung	Verlosung	geflochten	gefochten
0 0	2 0	1 0	1 3	0 0	0 1
erschiessen	erschossen	Folterung	Folgerung	vertragen	vertagen*
3 0	0 0	3 1	2 0	0 0 0	0
7 1	8 4	4 1	3 4	1 1	3 1
15 5		7 5		4 2	
Column Total		Column Total		Column Total	
31 25		27 11		15 13	

List Total 73 49

**Production data in *italic* type throughout.

*Due to an oversight these words show no contrast. The calculations compensate for this.

Table 4

Number of errors committed in PERCEPTION and *PRODUCTION* of "D" word pairs : NSC group

Medial Vowel Identity		Final Clusters		Post-Vocalic R, L	
Ohr	Uhr	Hass	hast	hart	hat
3 3	6 5	13 2	0 1	6 12	0 6
wenn	bin	Bann	Band	Hirn	hin
2 10	5 5	2 1	0 2	0 9	0 2
MaB	Maus	Kinn	Kind	Herbst	hebst
9 1	1 8	2 1	0 2	7 10	6 1
lahm	Leim	Haff	Haft	Salz	Satz
8 4	3 8	6 2	7 5	9 6	10 3
Wehr	wir	hell	Held	Sarg	sag
2 6	6 2	0 4	1 3	8 12	2 2
24 24	21 28	23 10	8 13	30 49	18 14
45 52		31 23		48 63	
singen	sengen	würfel	würfelt	Gerste	Geste
0 2	2 8	2 2	5 0	11 8	0 1
Kohle	Kuhle	gewann	Gewand	halten	hatten
8 7	10 2	1 1	1 3	1 1	1 1
Kehle	Kiele	Verkauf	verkauft	helfe	Hefe
5 7	6 4	10 0	3 0	2 1	3 2
Fahne	feine	Hobel	hobelt	parken	packen
11 1	1 7	4 3	3 4	2 9	7 2
habe	Haube	Verlass	verlasst	Balken	backen
0 0	8 11	3 1	4 4	2 5	5 3
24 17	37 32	20 7	16 11	18 24	16 9
51 49		36 18		34 33	
Windungen	Wendungen	liebhaben	liebhabend	verschulen	beschuhen
10 3	2 10	1 0	14 10	1 3	6 6
absaugen	absagen	überrasch	überrascht	erzielen	erziehen
12 11	4 3	6	4 4 2	5 0	4 4
beladen	beleiden	einbilden	einbildend	verlieren	verliehen
3 5	3 3	1 2	10 5	2 1	8 5
mittraben	mittreiben	Wiederruf	wiederruft	einschalten	beschatten
5 5	8 9	5 1	9 7	5 7	2 3
erzielen	erzählen	Getrampel	getrampelt	bestärken	bestecken
8 8	3 10	3 0	3 4	6 12	3 1
38 32	20 35	16 3	40 32	19 23	23 19
58 67		56 35		42 42	
Column Total		Column Total		Column Total	
154 168		123 76		124 138	

List Total
401 382

Table 5

Number of errors committed in PERCEPTION and PRODUCTION of "D" word pairs :ODU group

Medial Vowel Identity		Final Clusters		Post-Vocalic R, L	
Chr	Uhr	Hass	hast	hart	hat
3 1	4 4	3 1	0 1	0 2	1 0
wenn	bin	Bann	Band	Hirn	hin
8 5	4 2	1 0	0 2	9 6	2 0
MaB	Maus	Kinn	Kind	Herbst	hebst
4 0	0 2	2 0	0 0	1 2	3 3
lahm	Leim	Haff	Haft	Salz	Satz
5 1	0 2	6 2	0 1	3 6	1 1
Wehr	wir	hell	Held	Sarg	sag
3 6	1 3	0 0	2 0	4 4	6 2
23 13	9 13	12 3	2 4	17 20	13 6
32 26		14 7		30 26	
singen	sengen	Würfel	würfelt	Gerste	Geste
0 1	10 3	0 0	0 1	11 1	0 2
Kohle	Kuhle	gewann	Gewand	halten	hatten
6 4	13 4	1 0	1 2	1 1	2 0
Kehle	Kiele	Verkauf	verkauft	helfe	Hefe
6 1	3 0	3 1	1 1	0 2	0 0
Fahne	feine	Hobel	hobelt	parken	packen
6 0	3 1	0 4	3 0	0 3	2 2
habe	Haube	Verlass	verlasst	Balken	backen
0 1	2 2	4 0	0 0	1 1	9 0
18 7	31 10	8 5	5 4	13 8	13 4
49 17		13 9		26 12	
Windungen	Wendungen	liebhaben	liebhabend	verschulen	beschuhen
2 0	1 7	3 0	8 3	0 0	0 2
absaugen	absagen	überrasch	überrascht	erzielen	erziehen
5 6	0 0	4	7 0 1	0	1 0
beladen	beleiden	einbilden	einbildend	verlieren	verliehen
2 2	2 5	0 0	6 2	1 2	1 2
mittraben	mittreiben	Wiederruf	wiederruft	einschalten	beschatten
5 3	1 3	5 1	0 0	1 1	3 0
erzielen	erzählen	Getrampel	getrampelt	bestärken	bestecken
3 1	7 5	0 1	2 1	6 0	3 0
17 12	11 20	12 2	23 7	8 3	8 4
28 32		35 9		16 7	
Column Total		Column Total		Column Total	
109 75		62 25		72 45	

List Total
243 145

Table 6

Number of errors committed in PERCEPTION and PRODUCTION of "D" word pairs :UMA group

Medial Vowel Identity		Final Clusters		Post-Vocalic R, L	
Chr	Uhr	Hass	hast	hart	hat
5 0	2 4	1 0	0 0	0 1	0 0
wenn	bin	Bann	Band	Hirn	hin
0 0	4 1	0 1	0 1	1 0	0 0
MaB	Maus	Kinn	Kind	Herbst	hebst
0 0	0 2	1 0	0 0	0 2	0 0
lahm	Leim	Haff	Haft	Salz	Satz
3 0	1 2	1 0	0 0	1 1	0 1
Wehr	wir	hell	Held	Sarg	sag
0 1	1 1	0 0	0 0	4 0	2 0
8 1	8 10	3 1	0 2	6 4	2 1
16 11		3 3		8 5	
singen	sengen	Würfel	würfelt	Gerste	Geste
0 0	3 0	0 0	1 0	1 1	0 0
Kohle	Kuhle	gewann	Gewand	halten	hatten
5 3	4 3	0 0	0 0	0 0	1 0
Kehle	Kiele	Verkauf	verkauft	helfe	Hefe
2 1	1 0	0 0	0 0	0 1	2 0
Fahne	feine	Hobel	hobelt	parken	packen
4 0	1 1	0 1	0 0	0 2	2 0
habe	Haube	Verlass	verlasst	Balken	backen
0 0	1 1	1 0	0 0	0 0	0 0
11 4	10 5	1 1	1 0	1 4	5 0
21 9		2 1		6 4	
Windungen	Wendungen	liebhaben	liebhabend	verschulen	beschuhen
1 0	0 3	0 0	3 0	1 1	0 0
absaugen	absagen	überrasch	überrascht	erzielen	erziehen
3 3	0 0	0	1 1 1	0 0	0 0
beladen	bel eiden	einbilden	einbildend	verlieren	verliehen
1 0	2 3	0 0	1 0	0 0	1 0
mittraben	mittreiben	Wiederruf	wiederruft	einschalten	beschatten
1 2	0 1	0 0	1 0	0 0	1 1
erzielen	erzählen	Getrampel	getrampelt	bestärken	bestecken
2 1	1 1	0 0	1 0	3 0	0 0
8 6	3 8	0 0	7 2	4 1	2 1
11 14		7 2		6 2	
Column Total		Column Total		Column Total	
48 34		12 6		20 11	
		List Total			
		80 56			

Table 7

Summary* of Error Quotients for "G" and "L" Words for all Groups

Wd Type	Group	Task	N**	List EQ	Perception and Production Av. Vowels	Consonants
G	NSC	perception	1440	.256	.298	.207
G	NSC	production	1440	.218		
G	ODU	perception	1440	.106	.137	.119
G	ODU	production	900	.118		
G	UMA	perception	720	.101	.134	.078
G	UMA	production	560	.091		
D	NSC	perception	1440	.278	.335	.240
D	NSC	production	1440	.265		
D	ODU	perception	1440	.169	.239	.129
D	ODU	production	900	.161		
D	UMA	perception	720	.111	.195	.057
D	UMA	production	560	.104		

* For detailed raw data c.f. **tables 1-6.**

** N = No. of possible correct answers
N =(No. of students taking test) X (No. of items on test)

Figure 1 : Error Quotient for German Phonemic Distinctions

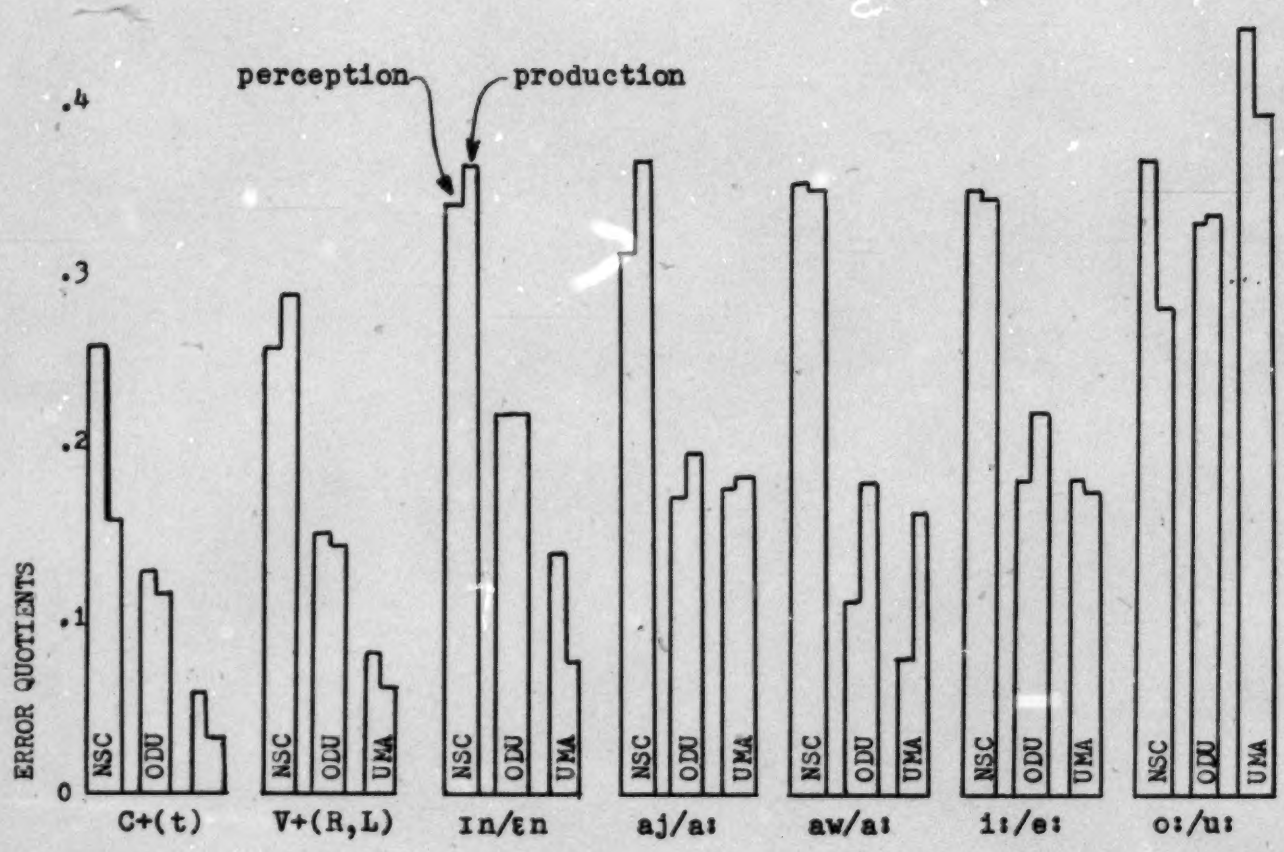

Table 8 : Iconographic Reading Test - Sentences and Words

1. Les deux savent que je suis etudiante.
2. Kein stamm kann aus einem loch wachsen.
3. He bought a draught of potable beer.
4. Qui peut te rendre malade?
5. Leider geben wir ihm doch das salz.
6. I loathe the rhythm of this poem.
7. Je sais qu'il faut etre doux.
8. Ein dach in der stadt ist klein und stramm.
9. He stuck a pin through the lock.
10. Mon amie me demande qui est derriere la porte.
11. Er kann mit mir in den staat gehen.
12. Restrain yourself from playing with the lathe.
13. Est-ce qu'il aime?
14. Mit einem satz lieder kann man nicht waschen.
15. I contend that we should retrain the unemployed.
16. Oui, s'il fait la derniere page.
17. Sie nickt mir zu.
18. During the drought the trough was empty.
19. Ouest, c'est la direction pour monter.
20. Quest: to grasp the rhyme and content of the poem.
21. Je rentre te montrer la voiture.
22. I brought my portable typewriter with me.
23. He longed for a gasp of fresh air.

English		French		German	
draught	drought	deux	doux	waschen	wachsen
potable	portable	derriere	derniere	kein	klein
loathe	lathe	suis	sais	stamm	stramm
rhythm	rhyme	Qui	Oui	leider	lieder
trough	through	rendre	rentre	doch	dach
retrain	restrain	faut	fait	salz	satz
contend	content	amie	aime	stadt	staat
brought	bought	monter	montrer	gehen	geben
grasp	gasp	Ouest	Quest (Eng.)	nickt	nicht
				loch	lock (Eng.)

Table 9 : Error Quotients for Iconographic Reading Test

Group	NSC	ODU	NSC	ODU
N	11	15	11	15
Type of Word	test	test	other	other
No. of Errors	111	71	45	59
Total No. Items	56	56	160	160
Error quotients	.180	.085	.026	.025